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Song Zhu, Ph.D.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. : 09/555,140 Confirmation No. : 3885
First Named Inventor : Gunnar-Marcel KLEIN
Filed : August 3, 2000
TC/A.U. : 1723
Examiner : Matthew SAVAGE

Docket No. : 178/48916
Customer No. : 23911

Title : Filter Element

REPLY BRIEF UNDER 37 C.F.R. § 41.41

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
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Sir:

This Reply Brief is in response to the Examiner's Answer dated October 18, 2005.

Status of Claims

Claims 13, 15-22, 35 and 36 are pending and under examination, and Claims 25-34 are withdrawn. Claims 13, 15-22, 35 and 36 are finally rejected and form the subject of this appeal.

Grounds of Rejection to Be Reviewed on Appeal

1. Claim 36 is rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement.

2. Claims 13, 15-22, 35, and 36 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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3. Claims 13, 15-17, 21, 35, and 36 are rejected under 35 U.S.C. §103(b) as being unpatentable over *Kadoya* (US 4,976,858) in view of *Sabee* (US 4,910,064) or *Togashi et al.* (JP 6-198,108).

4. Claims 18-20 are rejected under 35 U.S.C. §103(b) as being unpatentable over *Kadoya* in view of *Sabee* or *Togashi et al.*, and further in view of alleged Applicant's admission in the Appeal Brief filed on November 22, 2002.

5. Claim 22 is rejected under 35 U.S.C. §103(b) as being unpatentable over *Kadoya* in view of *Sabee* or *Togashi et al.*, and further in view of *Klimmek et al.* (EP 338,479).

Argument

The rejection of Claim 36 under 35 U.S.C. §112, first paragraph

Applicants wish to make two points in view of the Examiner's arguments in the Examiner's Answer. First, it is clear from the specification of the present application that the range of 50-200g/m² is described with respect to advantageous embodiments (see page 4, the second full paragraph). Second, the present case is different from *In re Wertheim*, 541 F.2d 257, 263 (CCPA 1976). In *In re Wertheim*, a value (35%) not disclosed by the specification is used to define a range. In the present case, on the other hand, the 50g/m² value is not new and is described in the specification.

Rejection of Claims 13, 15-22, 35, and 36 under 35 U.S.C. §112, second paragraph, as being indefinite

In the Examiner's Answer, the Examiner contends that the rejection is proper because "there is close prior art as evidenced by the pending rejection under 35 U.S.C. §103(a) and because the instant specification and prior art fail to disclose the ranges implied by the terms 'about' and 'at least about.'"

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In *Amgen, Inc. v. Chugai Pharmaceutical Co.*, 927 F.2d 1200, 18 USPQ2d 1016 (Fed. Cir. 1991), the Federal Circuit holds that the term "about" is indefinite if two conditions are satisfied: (1) There is close prior art and (2) nothing in the specification, prosecution history, or prior art provides any indication as to what range of value is covered by "about." See also, *Manual of Patent Examining Procedure* (MPEP) §2125 (8th ed., Rev. 4, October 2005).

In the present case, the Examiner has not satisfied neither prongs of the *Amgen* test. Regarding the "close prior art" prong, the Examiner contends that there is close prior art, citing the rejections under 35 U.S.C. §103(a) as evidence. However, as stated in Applicants' Appeal Brief and set forth below, the rejections under 35 U.S.C. §103(a) are improper, and the art cited in the rejections is not close to Applicants' claimed invention. Importantly, unlike in *Amgen*, Applicants need not reply on the claimed ranges to distinguish the claimed invention from the cited art, because the cited art does not disclose inflow and discharge layers having a decreasing storage capacity in the flow direction.

The second prong of the *Amgen* test is also not met, because at least the prosecution history of the present application provides indication as to what range of value is covered by "about" or "at least about." In the Reply dated December 23, 2003, for example, Applicants stated that the term "about" is used to indicate that the claimed invention is not limited to the exact numeral values that define the claimed ranges. The ranges covered by the term "about" or "at least about" can be determined in a manner similar to how proper manufacturing tolerances are determined, and this is done routinely by one with ordinary skill in the art.

Accordingly, it has not been established that Claims 13, 15-22, 35, and 36 are indefinite under the *Amgen* test.

The rejection of Claims 13, 15-17, 21, 35, and 36 as being unpatentable over Kadoya (US 4,976,858) in view of Sabee (US 4,910,064) or Togashi et al. (JP 6-198,108)

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In the Examiner's Answer, the Examiner raises various arguments in connection with this rejection. Applicants believe that many of the Examiner's arguments have been addressed in Applicants' Appeal Brief.

The Examiner first argues that *Kadoya* discloses the claim limitation of inflow and discharge layers having a decreasing storage capacity for particles to be filtered out of the fluid, because the inflow layer (5) of *Kadoya* has a higher capacity to collect large particles than the discharge layer (2) (see Examiner's Answer at page 9, lines 11-17). In a related argument, in response to Applicants' argument that the Examiner's statement that the inflow layer (5) of *Kadoya* has a higher capacity to collect larger particles is irrelevant and incorrect, the Examiner states that Applicants' claims fail to specify any particle size (see Examiner's Answer at page 10, lines 10-14).

In response to these Examiner's arguments, it is sufficient to quote the Appeal Brief:

The argument is irrelevant because each of Claims 13, 35, and 36 recites "a decreasing storage capacity for *particles to be filtered out of said fluid*," not a decreasing storage capacity for *large particles*. A filter layer having a higher storage capacity for *large particles* does not necessarily have a higher storage capacity for *particles to be filtered out of said fluid*.

The argument is also incorrect because *Kadoya* does not disclose that the inflow layer (5) has a higher capacity for collecting large particles. *Kadoya* merely discloses that the larger particles are trapped in the inflow layer (5) (column 2, lines 18-21; column 3, lines 22-25). However, this does not logically lead to the conclusion that the inflow layer (5) has a higher capacity for collecting large particles. It is possible that a discharge layer has a higher capacity for collecting large particles but does not collect any large particles because it is placed downstream of a fine inflow layer.

The Examiner also argues that the inflow layer (5) of *Kadoya* captures both small and large particles (see Examiner's Answer at page 10, lines 14-16). However, *Kadoya* does not disclose that its inflow layer (5) has a higher storage capacity for both small and large particles.

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The Examiner further argues that the inflow layer (5) of *Kadoya* has a larger thickness and lower density than the discharge layer (2) and therefore is inherently capable of storing a larger quantity of both large and small particles than the discharge layer (2) (see Examiner's Answer at page 9, lines 17-20).

In response to this argument, it is sufficient to quote the Appeal Brief:

Kadoya discloses only the thicknesses and specific weights (i.e., "densities") of the filter layers (2, 5) (column 2, line 65 to column 3, line 64). However, the storage capacities of the filter layers (2, 5) cannot be determined from only their thicknesses and specific weights. The specific weights of the filter materials must also be considered. For example, for a given specific weight and a given thickness of a filter layer, the storage capacity of the filter layer can be increased by using a filter material of a lower specific weight and decreased by using a filter material of a higher specific weight. The reason is that more filter material of a lower specific weight must be used to achieve the given specific weight of the filter layer, reducing the void space in the filter layer. On the other hand, less filter material of a higher specific weight is needed to achieve the same specific weight of the filter layer, increasing the void space in the filter layer.

Additionally, the Examiner argues that both Applicants and *Kadoya* disclose the formation of a dust layer within the inflow layer (see Examiner's Answer at page 10, lines 2-6). Applicants respectfully disagree.

The object of *Kadoya* is to provide a filter medium with an increased filtration efficiency and a long service life (column 1, lines 54-57). This object is achieved by using the inflow layer to trap large particles to promote the formation of a dust cake layer on the surface of the filter medium (column 2, lines 18-21). This dust cake layer prevents the particles from being embedded within the filter medium (column 2, lines 21-23). The present application, on the other hand, does not mention the formation of a dust cake layer on the surface of the inflow filter layer. Page 4, lines 4-6, of the present specification mentions only that filtered-out particles are accumulated in the filter layer, not the formation of a dust cake layer on the surface of, or within, the inflow filter layer.

Furthermore, it is illogical to conclude that the formation of a dust layer within the inflow layer and the failure to specify the formation of a dust layer

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within the discharge layer are tantamount to the disclosure of a decreasing storage capacity in the direction of fluid flow (see Examiner's Answer at page 10, lines 5-6). In fact, just the opposite is true. A smaller storing capacity of the inflow layer is conducive to the formation of a dust cake layer on the surface of, and within, the inflow layer, and reduces the formation of a dust cake layer in the discharge layer.

The Examiner also argues that it is impossible for the discharge layer (2) of *Kadoya* to have a higher capacity for collecting large particles because the pores of the discharge layer (2) are smaller than the large particles (see Examiner's Answer at page 10, lines 17-22). Applicants respectfully submit that *Kadoya* does not disclose that the pores of the discharge layer (2) are smaller than the large particles. The fact that the discharge layer (2) can trap small particles does not mean it cannot also trap large particles, because, as the Examiner points out, the inflow layer (2) of *Kadoya* traps both large and small particles.

The Examiner argues that the inflow layer (5) of *Kadoya* has a larger void space than the discharge layer (2) because the inflow layer (5) traps both large and small particles and the discharge layer (2) traps small particles (see Examiner's Answer at page 11, lines 1-9). Applicants respectfully disagree. It suffices to point out that it is illogical to conclude that a first filter layer has a larger void space than a second filter layer, simply because the first filter layer traps both large and small particles and the second filter layer traps small particles.

Regarding the claim limitation of an inflow layer having a weight per unit area (surface weight) of about 15 to 150 g/m², the Examiner contends that the lower end (180g/m²) of *Kadoya*'s surface weight range (180 to 300g/m²) could be encompassed by the claimed range of about 15 to 150 g/m² (see Examiner's Answer at page 11, lines 10-15). For the following reasons, Applicants respectfully disagree.

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First, it is improper for the Examiner to use the "could be" standard in determining obviousness. To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). The express, as well as the implicit and inherent, disclosures of a prior art reference may be relied upon in an obviousness rejection of claims. *In re Napier*, 55 F.3d 610, 613, 34 USPQ2d 1782, 1784 (Fed. Cir. 1995). In the present case, the Examiner has not established that the claimed range of about 15 to 150 g/m² is either expressly or inherently disclosed by the prior art.

Second, the prosecution history of the present application makes it clear that the range covered by the term "about" can be determined in a manner similar to how proper manufacturing tolerances are determined. When determined in this manner, the claimed range of about 15 to 150 g/m² do not cover the value of 180g/m².

Third, the Examiner has not provided any legal authority to justify his unprecedented use of the term "about." The Examiner's use of the term "about" renders the claimed range meaningless, since the claimed range can be expanded to cover any value.

The Examiner contends that *Togashi* teaches a surface weight of 40g/m². and that one skilled in the art would have modified *Kadoya* so as to include *Togashi's* inflow layer as suggested by *Togashi* in order to provide the required amount of storage capacity for dust in a specific application (see Examiner's Answer at page 11, lines 15-22).

Applicants respectfully submit that the Examiner's alleged motivation to modify *Kadoya* to include *Togashi's* inflow layer does not exist in the cited art and appears to be based on hindsight provided by Applicants' disclosure. In fact, *Kadoya* teaches the use of an inflow layer having a weight per unit area (surface weight) of 180 to 300g/m². There is nothing in the cited art that would suggest to

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one with ordinary skill in the art to abandon the suggested range of 180 to 300g/m² and to use the value of 40g/m², which is far out of the suggested range.

Regarding whether the claim limitation of inflow and discharge layers having a decreasing storage capacity for particles to be filtered out of the fluid is shown in Figures 3 and 4 of *Kadoya*, the Examiner argues that to equalize the thicknesses of the filter layers 5a and 5b shown in Figures 3 and 4 of *Kadoya* "would have been obvious in order to optimize the holding capacity/depth of the dust layer of each layer with respect to the size distribution of the particles to be filed in the case the relative quantities of large and intermediate size particles was about the same" (see Examiner's Answer at page 12, lines 1-9). It is beyond Applicants' comprehension what is meant by this argument. It suffices to say that this alleged motivation or suggestion cannot be found in the cited art, and that *Kadoya* does not disclose a situation where the relative quantities of large and intermediate size particles are about the same.

The Examiner further argues that "at the lower end of the density ranges for layer 5a (e.g., .1g/cm³, see lines 56-60 of col. 3) the surface weight of layer 5a would be within applicant's claimed range as the thickness of the layer 5a approached the thickness of both layers (e.g., 1.2 mm see lines 47-49 of col. 3)" (see Examiner's Answer at page 12, lines 9-13). In response, it suffices to say that *Kadoya* does not disclose the thicknesses of the filter layers (5a and 5b). This "would be" standard, just like the "could be" standard, has no place in the determination of obviousness.

With regard to Claim 15 (and thus Claim 16), the Examiner again argues that the filter layers (5a and 5b) of *Kadoya* could be configured to have the same thickness (see Examiner's Answer at page 12, lines 16-21). As stated above, *Kadoya* does not disclose the thicknesses of the filter layers (5a and 5b). The Examiner also argues that the filter layers (5a and 5b) have decreasing porosities (see Examiner's Answer at page 12, line 19). This is not true. In fact, the

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porosities of the filter layers (5a and 5b) cannot be determined based on the information provided in *Kadoya*.

With regard to Claim 16, the Examiner failed to address the limitation of "a weight per unit area in the range of 15 to 150 g/m²" in the final Office Action, but now contends that this limitation is obvious when the filter layers (5a and 5b) of *Kadoya* could be configured to have the same thickness (see Examiner's Answer at page 13, lines 9-13). Applicants just want to reiterate that *Kadoya* does not disclose the thicknesses of the filter layers (5a and 5b).

The Commissioner is hereby authorized to charge any necessary fees to Deposit Account No. 05-1323 (Docket No.: 037141.48916US).

Respectfully submitted,

December 18, 2005



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